



WORK IN PROGRESS

United Nations University

Volume 13, Number 3

September 1991

At the dawn of the 20th century, the world was largely a rural place – fewer than one person in seven, it is estimated, lived in an urban area. By the end of this century, a few short years away, we face the prospect of a global population that is half urban. By far, most of this growth will occur in the already overcrowded and unmanageable cities in the third world, particularly in those huge urban conglomerations known as “mega-cities.”

The current problems of the world's largest metropolises, and some of the long-term implications for their growth and development, were the focus of a Symposium on the Mega-City and the Future held in Tokyo in October 1990 under the joint sponsorship of the United Nations University and the Population Division of the United Nations. The meeting brought together some 40 experts in various aspects of urban life – environmentalists, geographers, economists, engineers, social scientists and others, including elected city officials and representatives of international organizations – for four days of discussion of the major issues confronting the mega-city today. This issue of WORK IN PROGRESS is based largely on materials presented at that symposium.

Mega-City New to History

The mega-city is a fairly recent phenomenon in human history. At the beginning of the 19th century, the largest city in the Western world was London, with just under a million people, whereas in Asia, Tokyo had just over one million; Paris had about half a million and Osaka had roughly a little more. A hundred years later, at the onset of the current century, there were 11 cities worldwide with more than a million inhabitants – most of them in Europe and North America. By the year 2000, it is estimated that there will be a total of 24 cities around the globe with populations in excess of 10 million. Eighteen of these mega-cities will be in the third world.

The mega-cities, it was observed at the symposium, often tend to have more in common with each other than their rural hinterlands – whether in poor or rich nation. More and more, there would appear to be a kind of urban pathology that crosses ideological, economic and cultural lines. Life in a large city – whether New York, Paris or Calcutta – is too often seen, in the words of Aprodicio Laquian in his overview of world cities, as “dehumanizing, corrupting and degrading.” Om Prakash Mathur further argues that in the third world the mega-cities offer “the worst forms of visible poverty” with their slums, squatter settlements and unsanitary living conditions.

Against this justifiably negative perspective, there is the countervailing view of the city as a positive force in human history. The famed French historian Ferdinand Braudel likened towns to “electric transformers” that accelerated the rhythm of exchange and constantly recharge human life. The large metropolis and its environs, it seems clear, is where the latest advances in micro-electronics, computers, communications and other scientific progress are most likely to be generated. It also seems indisputable, as Andrew Marshall Hamer of the World Bank noted at the Tokyo symposium, that the new arrival in a city, on average, will do better economically than had he stayed back in the impoverished countryside.

While the movement from countryside to city has been going on throughout this century, its escalation to crisis proportions is largely a post-

city of Curitiba (pop. 1.6 million with annual growth rate since 1960s nearing 6 per cent), reported to the Tokyo conference on some of the ways he which his city was coping with transportation needs.

African urban development has had yet another pattern. Few urban agglomerations on that continent are seen yet as mega-cities – only Cairo and Lagos would qualify, although others, like Nairobi, Kinshasa and Kano, have the potential. Much of Africa's urbanization is due to the “push factor” from its ravaged and environ-

mentally degraded countryside. Government policies have more often than not favoured the cities to the disadvantage of the rural areas. The terms of trade are generally unfavourable to the agricultural sector. Fu-chen Lo discusses some of the consequences of the collapse of commodity prices for urban areas throughout the third world.

He also considers some of the implications in the increasing dominant role played by modern technology in defining the current international economic paradigm – a process which tends to link the world's mega-cities, often to the exclusion of their own countrysides, into a new kind of world city system.

The City as Ecosystem

A new way of looking at the city is offered by Ignacy Sachs and Dana Silk – one which views the city as essentially an artificially created ecosystem. They argue that this approach could help planners to understand how the complex urban environment combines elements of both natural and artificial systems. Such a perspective would emphasize the many actual and potential interactions between different human activities in urban areas. The Sachs/Silk article is excerpted from their book, *Food and Energy: Strategies for Sustainable Development*, newly-published by the United Nations University Press and based on the UNU's Food-Energy Nexus project research.

The mega-cities of the world can be divided roughly into two categories. First, there are the thriving metropolises driven by their role – financial, political, technological – in the global network. The big urban centres of the industrialized countries and those of the newly industrialized economies (NIEs) of South-East and East Asia fall into this category. Tokyo, the world's largest city, is frequently held up as the “mega-city” that works. Some of its promise and its problems are discussed here by three Japanese urban specialists: Masahiko Honjo; Hisatake Togo; and Shigeru Itoh. A case history of Seoul, a major mega-city of the newly developing nations is presented by Sang-Chuel Choe.

Whatever their locale and whatever their population ranking, it is clear from the symposium presentations and discussion that mega-cities around the world are in a state of transition and will face new and complex challenges in the 21st century. Their gigantic size, as well as the impressive sum of their economic, social and cultural activities, will continue to shape the mega-cities as vital centres of civilization.

The dynamism of the mega-cities can invigorate old institutions and create new ones needed to cope with the concerns of the 21st century. But the complexities inherent in their great size impose difficult policy choices in addressing the different needs of their constituents, who make up a vast chunk of humankind today. – Editor ■

Cities in the 21st Century

THE URBAN HALF

World War II phenomenon – with a rapid growth in metropolitan areas in all parts of the world. Previously, it was the rich industrialized countries of the north which were urbanized, while the poor south was predominantly rural. This has been changing rapidly over the past several decades due to the continuing rural flight of millions into the teeming already crowded cities of the third world.

In Asia alone, it is estimated that the second half of the 20th century has seen more than three-fold increase in urban inhabitants. Not all of this, of course, is the result of migration; estimates vary widely as to how much is due to migration, how much to natural increase. Whatever the true figure, however, it is the migrants who are the most highly visible on arrival, and more demanding on most public services than new babies.

The rapid growth of cities everywhere in the developing world raises questions about what rate of urban growth should be supported. What are the limits of urbanization? What should be the proper spatial distribution of human activities – which affect transportation flows and thus energy costs. These were the sorts of questions the mega-city symposium sought to address.

What Is a Mega-City?

There was general consensus at the Tokyo meeting that a definition of a mega-city based merely on population size would not suffice. There must also be some fundamental criteria that distinguish it from other large cities – and these would probably be linked to the city's position in the urban hierarchy, both of the nation in question and in the international city system. A mega-city needs to be defined, therefore, in light of its role as an economic and political centre. There was further recognition that what was being discussed were not just mega-city problems – rather they were often problems shared by urban areas generally, and thus were concerns impacting more or less directly on half of humanity as it enters the 21st century.

The symposium highlighted the various forms that the urbanization process has taken in different countries and regions of the world. In Asia, where the flight to the cities has been most extensive, population density is not only an urban characteristic – indeed, the Asian countryside supports some of the densest populations anywhere. As a response, several countries of the region have sought to encourage decentralized urbanization. This phenomenon is discussed in the Indonesian context by Terence McGee in an excerpt from his Tokyo paper.

In Latin America, economic development has tended to concentrate in the major ports where the European colonialists arrived – Buenos Aires, Montevideo, Rio de Janeiro. Yet other, less well-known Latin American cities have also experienced rapid development and population growth. The mayor of one such city, Jaime Lerner of the Brazilian

The Pathology of the City

By Aprodicio Laquian

Whether in a rich or poor nation, the urban landscape has many common, and disturbing, elements. For many millions of its citizens, modern urban living can be put in Hobbesian terms: it is "poor, nasty, brutish and short."

The gap between the very rich and the very poor – whether it be in London, New Delhi, Caracas, or Lagos – continues to widen. In the industrialized world, the homeless warm themselves on sidewalk subway grills in front of the apartments and hotels of the very wealthy. In the developing countries, the continuing flood of poverty-stricken rural villagers into urban areas are essentially little more than a shift of the poor from an already miserable countryside to an even more forlorn and despairing urbane landscape.

This is the pathology of modern cities, argues Aprodicio Laquian, a reality that transcends religious and ideological differences. Dr. Laquian is with the United Nations Population Fund. The following is excerpted from his paper to the Tokyo Mega-City Symposium. – Editor

In the mega-cities of both industrialized and developing countries, the gap between the very rich and the very poor seems to be widening. In 1980, the UNDP estimated that 40 million urban households were living in poverty. This was projected to grow to 72 million by the year 2000 – a 76 per cent increase. The polarization of affluence and poverty is seen in more developed countries as well. US Senator Patrick Moynihan of New York has estimated that more than half of the babies born in New York City by the year 2000 will be to parents who are on welfare (that is, government assistance). He blames government policies that cut back welfare assistance for the further impoverishment of the already poor.

In developing countries, the global recession and economic difficulties in the 1980s have significantly weakened the capacity of central governments to respond to urban needs. Hyper-inflation, the debt burden and the structural adjustments imposed on many developing countries have combined to make national survival a more pressing problem than that of the cities.

Strain on Infrastructure

Urban infrastructures in most developing country mega-cities have not been able to keep up with expanding need. In Nairobi, for example, the per capita spending for water and sewerage fell from \$28.00 to \$2.50 in 1987. In Calcutta, about 3 million people live in shanty towns without potable water. In Karachi, only a third of urban households have a piped water connection. In Bangkok, less than a third of the people have access to piped water; so many households have dug wells that the water table has been causing the land to subside.

The Homeless: From New York to Bombay

Pavement dwellers and the homeless used to be found mainly in third world cities like Bombay, Calcutta and Madras. Now, an estimated 600,000 to 3 million people in America are homeless, with about 35,000-70,000 in New York, and 6,000 in San Francisco. The conservative ideology and fiscal policies of the Reagan administration severely cut back federal grants for social and welfare programmes. Appropriations for subsidized housing were cut from \$33 billion in 1981 to \$8 billion in 1988. The effects of such policies have been hardest on the mega-city poor. In Los Angeles, welfare payments have gone down by 33 per cent.

In New York, programmes for the homeless have increasingly relied more on community philanthropy, providing shelters and soup kitchens for the homeless, transitional housing, and health and counselling. While these efforts have been able to help a few, authorities are finding that quite a proportion of the homeless are beyond their reach. It was estimated, for example, that about half



"Smoky Mountain" garbage dump in Metro Manila, Philippines

of women in transitional housing in New York have a drug problem. The problem of the homeless in America has reached a point where President Bush himself has called it "a national shame." The problem seems to be intractable as it involves so many sectors.

The "Metropolitan Solution": What Went Wrong?

In the mid-1960s, the metropolitan solution was hailed as the cure to mega-city problems. In such experiments as Greater Miami, Metropolitan Toronto, Greater London, the Bangkok Metropolitan and Metro Manila, metropolitan government provided the comprehensive planning, wider and stronger tax base, area-wide services, broad-scale representation and participation – along with administrative efficiency that promised to cope with the problems of the mega-city.

Barely two decades after the flourishing of the metropolitan approach, however, this solution is in retreat. In 1989, the Greater London Council was abolished. The Metropolitan Manila Commission was also abandoned (although here the reasons were due more to national politics than metropolitan disaffection).

What brought about the weakening of the metropolitan approach is a complex of factors rooted in ideology, economic recession and civic reactions. The past two decades have seen the rapid growth of a conservative ideology that railed against big governments, bureaucracies and higher taxes, while at the same time hailing popular participation, private enterprise and voluntarism. The increasing costs of providing metro-wide services, the growing assertiveness of local units, and the general ineffectiveness of some area-wide solutions further eroded the capacities of metropolitan governments.

The Pathology of the City

There are few areas where traditional religions and Communist ideology agree totally: the city as the source of evil is one of them. Recent developments in urban pathology seem to bear out their dire prophecies about urban living as dehumanizing, corrupting and degrading.

Even a cursory reading of recent headlines leaves one with the impression that mega-cities are falling apart. Inner city schools in New York City are braced for the entry into kindergarten of a generation of five-year olds prenatally exposed to the drug, crack – "little monsters" with neurological, emotional and learning problems put under the charge of poorly paid and ill-trained teacher.

Bangkok and Manila admit that AIDS cases are badly underestimated even as tourism officials warn against alarmist statements that may scare tourists away. Tokyo's rapidly aging work force worries about future security at the same time that younger couples are faced with the counter-pressures of caring for elderly parents in cramped, over-priced

housing or evading their responsibilities and pursuing a consumer-oriented way of life. Drug-related bombings and assassinations plague Bogotá while gangs battle each other for turf in Miami, Boston and Toronto. Riots break out in Berlin, Amsterdam and London as squatters are evicted from dilapidated buildings, or as ethnic conflicts erupt between Asians and Caucasians.

Recent urban pathologies include rising incidents of "hate crimes" or bias-related random violence. New York tabloids have sensationalized gang rape, assault on strangers, and random terrorism of innocent citizens. So-called "thrill killings" have been known in Bangkok and Manila. Ethnic and religious tensions in mega-cities are indicated by assaults and boycotts. Live television coverage has given urgency to urban violence, be it the shooting down of demonstrators in Beijing, tear gas attacks in Seoul, artillery duels in Beirut or coup attempts in Manila. While there may be some positive images of mega-cities in some areas, in general they have been depicted in recent times as violent, decadent and falling apart.

Mega-City Victims: Women, Young, Elderly

Some of the most disadvantaged groups in the mega-cities are women, youth and the elderly. Women who head urban households are particularly vulnerable as they try to fulfil the twin roles of income-earner and home-maker. The young, particularly those living outside the traditional support net of the family, present enormous problems. The elderly are also victims of the weakening of family ties; where they do not have sufficient savings, assets or social security, they find it difficult to survive in the mega-city.

Understanding Dynamics

The social and welfare needs in the mega-cities – in both the developed and developing world – have not received the attention they demand. Popular imaginings of the mega-city of the future dwell primarily on technological marvels: anti-gravity trains, greenhouse agriculture, computerized home shopping, solar-power cars, etc. In contrast, research and thinking on the social and welfare aspects of mega-city life harks back to nostalgic ideals of the small community, the traditional family, reliance on civic conscience, charity.

It is only natural for a time lag between technology and social change – and sometimes urban societies seem to be reverting to old norms instead of adapting to new technologies. But what cannot be ignored is the increasing deterioration of social life in the mega-cities of this world. There seems to be an inability to apply some of the marvel and promise of scientific and technological innovation to the human condition. But if this incapacity persists, the future of the mega-city – and indeed the future of the human species – may not be so bright. ■

New Strategies for Urban Poverty

By Om Prakash Mathur

There is much anecdotal evidence about the misery of poverty in big urban centres anywhere in this world – and it is no respecter of a nation's relative affluence. The poor, the lost and the homeless can be found in disquieting numbers living out their tragic daily existence in Calcutta, Bogotá, Paris or New York.

One puzzling lack, asserts Om Prakash Mathur, is in the attention paid to the plight of the urban poor by major research institutions and government policy makers. Too often, it would appear, policies aimed at poverty alleviation focus only on national statistics. Such strategies, he argues, ignore the special dimensions of urban poverty. Poverty in the cities cannot be simply lumped into the blur of national statistics.

Dr. Mathur, an urban planner specializing in urban management, is the Director of the National Institute of Urban Affairs in New Delhi, India. The following is excerpted from the paper which he presented to the Tokyo Symposium on the Mega-City and the Future. – Editor

Concern for urban poverty in the developing countries is of a comparatively recent origin. Some claim that the turning point was the annual address in 1975 by the then World Bank President Robert McNamara, where he drew attention to the fact that in the developing world "the urban poor exist in thoroughly squalid conditions, afflicted by malnutrition, devoid of rudimentary sanitary facilities, lacking employment, possessing minimum shelter if at all."

Until this address, or perhaps more accurately the early 1970s, public policy responses did not distinguish between rural and urban poverty, and paid little attention to urban poverty issues. Most developing countries worked under the assumption that urbanization was necessary, that it was central to any economic transformation, and postulated that economic transformation will itself trickle down and gradually spread out to the different population and income groups. The potential adverse consequences of urbanization were overlooked. Government interventions in the urban arena were aimed essentially at removal and clearance of slums, considered until then the main manifestation of poverty in urban areas.

1970s, Painful Awakening

The 1970s, however, opened under totally different sets of conditions and circumstances – with countries painfully recognizing that urbanization and the manner in which it had come about was not an unmixed blessing. On the one hand, urban areas – and particularly those gigantic sprawls coming to be known as "mega-cities" – could result in massive economic gains and productivity. But they were equally the centres of large scale poverty and deprivation. More concretely, if we look at it in a historical perspective, it appears that the development of urban public policy responses grew out of three simultaneously operating forces:

1. The failure of the developing countries to anticipate the scale and pace of urbanization, and their relative unpreparedness to address urbanization issues;
2. The inability of the formal sector to expand and correspondingly absorb the increasing urban labour force; and
3. The incapacity of the formal institutional systems to expand the infrastructure – particularly basic urban services – to meet the needs of fast growing urban populations.

Two Schools: Lessen "Pull," Direct "Push"

There were two principal schools of thought about the problem of burgeoning urbanization and urban poverty in the developing countries. One stressed policies designed to lower out-migration from rural areas. This was one of the main justifications for the rural development policies of the 1980s. A second policy response was urban decentralization and development of small and intermediate-sized cities. The most common instruments were fiscal incentives designed to alter the location of investment and the subsidization of urban infrastructures in smaller cities.

Neither of the two policies seemed to have any impact on the problems arising out of urbanization.

Such efforts were frequently undertaken with little systematic rationale. The doubts that rural development or industrial decentralization policies could solve the fundamental urbanization problems led many developing countries to conclude that large urban agglomerations were a fact of life. They were unlikely to disappear. The realistic question thus was what to do about the poor population in such cities.

Should there be policy interventions analogous to those designed to deal with rural poverty – or should there be different policy packages? (It should be noted here that urban poverty levels seem to be appreciably high in countries that also have high incidence of rural poverty. In countries like Bangladesh, Guatemala, Haiti, Ethiopia, Nepal, Burundi, Lesotho, the Philippines, and Madagascar, both urban and rural poverty rates are extremely high, exceeding 50 per cent. This places such countries in situations where they have to make difficult investment choices between urban and rural poverty.)

Facing up to the fact of the growing number of the poor meant, among other things, improving urban housing, generating employment, and expanding urban water supply, sewage disposal, and other health and education services.

First Priority – Shelter

The principal emphasis in the anti-poverty strategies in most developing countries was on shelter for the low-income groups. Most typical were so-called "sites and services" projects – where land parcels fitted with rudimentary urban services were provided to poor people who then constructed their own dwellings or contributed to their construction. Another emphasis was on upgrading existing slum settlements, employing largely self-help methods.

Compared to sites and services and slum upgrading, the employment generation components of anti-poverty strategies were small. Following the basic needs strategy, several developing countries emphasized the linkages between services – such as water supply, sanitation, primary health, education and nutrition – with poverty alleviation, and established separate programmes for the provision of services. These programmes were directed mainly at women and children, considered by many as the "poorest of the poor."

The experience gained in several countries, however, shows that public policies and programme interventions have made at best a marginal impact on the urban poverty problems in the developing countries. Sites and services projects have reached few poor people over the years, and the justification for such projects is questionable. It remains controversial whether sites and services projects are, in fact, affordable to the poor – with considerable evidence that market forces tend to operate against the poor in such situations. The shelter projects remain unaffordable to low income groups without subsidies. In addition, access to shelter and urban services is hampered by public regulatory policies, including planning laws and regulations, building standards and rent controls.

Community-based Approaches

The last few years have seen increasing reliance in several developing countries on community-based approaches. In a sense, these constitute a reaction to the poverty alleviation efforts of the 1960s and early 1970s, when it became clear that cities on their own could not solve the problem of services or shelter effectively by slum clearance, relocation and public shelter policies. Most governments then turned to policies involving development of sites and services, the upgrading of slums and – more critical – the promotion of self-help and community participation in poverty alleviation programmes.

Yue-man Yeung, in his study of the linkages between urban services and "people-based" mechanisms to achieve them,* pointed out that "the gradual realization of the ineffectiveness of a service

delivery model, i.e. government provided services, has promoted experimental and innovative efforts to mobilize people's resources towards improving the urban living environment."

According to him, the main rationale of the experimental community-centred approach is to make use of community resources for the delivery of basic physical and social services. Such attempts, he found, require new community-based styles of management characterized by popular participation. The services provided in most urban situations – and particularly in the congested mega-city atmosphere – are often unevenly distributed, and skewed in favour of high-income communities. (See Ignacy Sachs, "Improving Life in the L-City," *WORK IN PROGRESS*, Vol. 10, No. 1). It is therefore a pragmatic strategy for the urban poor to organize themselves and arrange to provide and manage the needed services to themselves – in the process preserving indirectly scarce capital for the government to pursue other developmental purposes that might also benefit the poor.

Lessons from Community Participation

Several lessons have emerged from the evaluation of poverty alleviation programmes that are currently operating on a community participation basis in several countries.

First, it is evident that the nature and extent of community participation varies: between those where the government has a definite say as to the content and manner in which urban services are to be improved and those where the slum settlements organize themselves to make available those services which the government fails to deliver.

Second, most people-oriented programmes require strong leadership, which may be formal or informal. Almost all studies point to the need for improvement in leadership qualities.

Third, one of the main responsibilities of community leaders is to help the poor articulate their needs in a more effective and organized manner. In several urban poverty programmes, for example, the package of services does not reach the lowest socio-economic groups. The real needs and problems of poor communities are quite different from those provided under the programmes.

Fourth, and final, the activities provided under the various programmes are generally not diversified enough to cater to a broad spectrum of needs. As studies point out, this is a consequence of the bias which tends to favour physical and visible services at the expense of social services specific to individual communities.

Poverty and the Mega-Cities: The Future

Almost all projections indicate that the urban population of the developing countries will increase from approximately 1.38 billion in 1990 to about 1.97 billion by the turn of the century – and cross the 4.0 billion mark by the year 2025. One of the distinguishing features of this growth will be the rise of mega-cities on the global space.

In several countries, the demographic weight of mega-cities is already large and overwhelming. Mexico City now accounts for over 30 per cent of the country's total population; the population of Buenos Aires is nearly 42 per cent of the urban population of Argentina. Seoul contains 37.5 per cent of the Republic of Korea's total urban population.

It also seems evident that the urban poverty situation will worsen over the years. – and that the mega-cities of the third world will encounter bigger pressures, particularly in respect of social services. This is evident in various studies of the young. At the present time, 44 per cent of Bangkok's population is under 19 years of age; in Cairo it is almost 48 per cent.

With these sorts of burgeoning young populations, the provision of education and health services is bound to become a major challenge for the developing countries. But a serious reality to be faced is that these countries themselves have placed low priorities on precisely these two areas. In nearly 40 per cent of the countries for which data are available, health expenditures are less than 1 per cent of GNP – and in most of the rest it does not exceed 2 per cent.

* Yue-man Yeung, "Provision of Urban Services in Asia: The Role of People-Based Mechanisms," *Regional Development Dialogue*, Vol. 6, No. 2, United Nations Centre for Regional Development, Nagoya, Japan, 1985.

Lopsided Modernization and the Urban Poor

By Ignacy Sachs and Dana Silk

If the globe's current trends in urbanization continue, by the year 2010 – just one generation from now – the poor of the teeming, overcrowded third world cities will gain a dubious distinction: they will become the new majority among the world's population, displacing the rural poor.

The backlog of unattended urban needs, point out Ignacy Sachs and Dana Silk, is so overwhelming and the inflow of people into third world cities is so great that it is simply impossible to hope to solve the problem by providing "more of the same." New urban development strategies are called for, based on social innovation.

The following article is excerpted from the new book by Professors Sachs and Silk, *Food and Energy: Strategies for Sustainable Development*, published by the United Nations University Press. Their volume is based on the research findings of the UNU's five-year Food-Energy Nexus Programme (FEN) (1983-88) which was directed by Dr. Sachs. He is Director of CIRED, the International Research Centre on Environment and Development in Paris, France; Dr. Silk is a scientist working at CIRED. – Editor

Urbanization is by far the most important social transformation of our times. In 1800 no more than 3 per cent of the world's population lived in cities, but by the year 2000 urban dwellers will outnumber the rural population.

The consequences of such a massive population shift are assessed in diametrically opposed fashion by the supporters and the foes of large cities. The former emphasize the civilizing role of cities, the high productivity achieved by industries and modern services thanks to their unprecedented degree of concentration, the amenities of urban areas (in sharp contrast to the apparent drudgery of rural areas and smaller centres), and the multiple opportunities for work and self-realization offered by their inhabitants.

The foes of urban life insist on the parasitic character of the city, diverting and draining for its own advantage the economic surplus produced by the countryside. They point to the deep disruption of the urban environment with the attendant health hazards, the often appalling housing and working conditions of the urban poor, the endemic unemployment and underemployment, and the social anonymity resulting from sub-human living conditions.

Some experts have celebrated cities as prime movers of economic development while others have been much more subtle. Whatever the wonders achieved by cities with the economic surplus that they have been able to concentrate, one should not forget that primitive accumulation was largely through extracting this surplus from the peasantry of today's industrialized countries and their colonies.

At stake for third world countries is the opportunity to transform their condition of "lateness" into an advantage. Modern science and technology associated with a critical analysis of the impasses of

industrialized societies should allow third world countries to find alternative patterns of urbanization and to implement them at far less social, economic and ecological cost.

The "Real" Economy of Cities

The ways in which market and non-market economies combine are quite complex. The informal sector, for example, is often referred to as "hidden" or "invisible." A better term would be "statistically unrecorded," as most of the activities in the market segments encompassed by these names are anything but hidden – they are generally conducted out in the open. None of these term really offers a suitable framework to describe the latticework of the real economy.

A closer look at the real economy of the city – a diverse mixture made up of interconnected markets (both legal and criminal), non-market household activities, subsidies, distribution of goods, and provision of services – shows that many of the resources not accounted for in official statistics are being intensively used by people to build their homes, produce food for self-consumption or sale, and transform recycled waste into saleable commodities.

A Bootstrap Operation

What will happen now, in times of crisis? For the bureaucrats from the ministries of planning or finance, the answer is clear: austerity budgets, exacerbated by the requirements of foreign debt servicing, means that so-called "non-productive" investments must be cut to the bone. But difficult as it is, the situation is not entirely stalemated so long as there are idle, underutilized or dilapidated physical and human resources that might be used to produce socially desirable goods and services, without violating the prevailing budgetary restrictions.

However, self-reliance does not necessarily mean self-sufficiency. The complexity of the modern world cannot be tackled by decomposing it into an archipelago of self-sufficient communities, be they rural, urban, or suburban. But self-reliance in moral, political, and intellectual terms makes people resourceful and confident. They assume their situation instead of taking a passive approach. Looking around them, they end up by identifying resources in their own backyard that could be exploited to bring some relief to their plight.

What Is a City?

Economists have tended to look at cities as the site of many enterprises, whose concentration creates both positive and negative results, but requires, in any event, a costly infrastructure. Human ecologists have been advocating, without much success to date, the study of cities considered as ecological systems. Most of the studies on urban systems conducted within the Man and the Biosphere Programme of UNESCO deal with the impact of cities on the natural environment and its food-



Luxury towers facing shacks in Bombay, India

producing systems, or they describe in detail the energy flows inside the city.

The approach which we followed in the Food-Energy Nexus (FEN) Project of the United Nations University was somewhat different. For analytical purposes, the city was considered as a predominantly artificially created ecosystem – with paradigmatic analogies in relation to natural ecosystems. Such a perspective emphasizes the actual and potential interrelations and complementarities between different human activities conducted in the cities.

Turning Waste to Wealth

Fortunately, in most cities the backlog of untapped opportunities for transforming waste into wealth is very large indeed. A city should thus be regarded as an ecosystem with its own potential of latent, underutilized, misused or wasted resources.

Complex and diverse, urban environments combine elements of natural and entirely artificial environments. They juxtapose modern factories, lavish residential quarters, and suburban expressways with decrepit sweatshops, sprawling slums, and antiquated public transportation. The same city can provide an array of environments for different groups, a multiplicity of ecological niches ranging from cozy to uncomfortable, from healthy to filthy, from safe to dangerous, from friendly to hostile. These are multi-layer towns, often with a marked spatial separation – garden cities for the rich, shanties for the poor – resulting in what amounts to an apartheid society.

Urban Poor: The Worst of Both Worlds

It should be remembered that the urban poor are the main victims of environmental disruption. In addition to living in conditions of squalor subject to the pollution of poverty, they are also the most exposed to the pollution generated by the lavish consumption patterns of the urban elite, including the increasing affluence of the middle class.

The bridge for many is provided by the TV soap operas with their consumerist message: watching them from a shantytown is fairly surrealistic. It forces one to think about the latent explosion of the situation in the dual cities of the third world produced by lopsided modernization.

Urban Population by Major Regions – 1960–2025

Region	1960	1970	1980	2000	2025
World	33.6%	36.9%	39.9%	48.2%	62.4%
Less developed	21.4	25.2	29.4	40.4	57.8
More developed	60.3	66.4	70.6	77.8	85.4
Africa	18.4	22.9	28.7	42.2	58.3
Latin America	49.3	57.4	65.4	76.9	84.4
North America	69.9	73.8	73.8	78.0	85.7
East Asia	23.1	26.3	28.0	34.2	51.2
South Asia	18.3	21.2	25.4	36.8	55.3
Europe	60.5	66.1	71.1	78.9	85.9
Oceania	66.3	70.8	71.6	73.0	78.3
USSR	48.8	56.7	63.2	74.3	83.4

Source: UN Population Division

Urban Transport and Urban Growth

By Jaime Lerner

The public transportation system of a city does much more than merely carry its citizens from one place to another – it can play a major role in encouraging and controlling urban growth. The availability – or unavailability – of bus service, subways, and other forms of urban transport – can be major forces in shaping people's perceptions of their own neighbourhoods and of their own daily lives.

This is the city planning philosophy of Mayor Jaime Lerner of the Brazilian city of Curitiba, the capital of the State of Parana. The city has a population of some 1.6 million, and is situated about 350 kilometres south-west of São Paulo. Since the beginning of the 1960s, Curitiba has been experiencing an annual population growth rate of 5.6 to 5.8 per cent.

In the following paper, which he presented at the Tokyo Mega-City conference, Mayor Lerner discusses the ways in which his city went about introducing a mass transportation system to meet the new challenges of a swelling population. His paper was prepared under the auspices of Curitiba's Institute of Research and Urban Planning (IPPUC). – Editor

Along with its own rapid development, Curitiba constitutes an attraction pole for migratory flows of the most diverse origins – but particularly farmers coming from the inland regions of the State of Parana, who are leaving their land due to a combination of adverse climate conditions and the increasing mechanization of agriculture.

Average per capita income in the city is on the order of US\$1,200 annually. The family income distribution reflects the patterns observed in the other state capitols of Brazil. A major portion of the population – something like 80 per cent – belongs to lower income levels (as little as US\$500 per year).



Jaime Lerner, Curitiba's Mayor

The urban planning system implemented in Curitiba helped us to direct the city's growth, while at the same time trying to act in social areas by giving access to the needy population to urban transportation facilities.

A planned development process was started in Curitiba in 1970 when it became apparent that the city was growing both rapidly and radially – outward from the city centre in all directions. The plan put forward aimed not only at easing traffic circulation but also at evolving it within a broader land occupancy perspective. The central area of the city was seen as having limited rational growth potential, while the commercial and service sectors should be encouraged to expand lineally along

structural axes stretching out north, south, east and west.

Transport System for Needs Not Cars

For the first time, a new mass transport concept was planned to meet the needs of a Brazilian city, where routes and land use are more important than the vehicle using them.

The major avenues in the new Curitiba scheme were designed for three types of traffic. An outside divided roadway is for high speed traffic. The central roadway is divided between two lanes: one for slower two-way traffic streets, and an exclusive central lane for the express bus system.

Along this whole structural route, stations are situated every 400 metres equipped with newspaper stands, public telephones and post office facilities. This was part of the strategy of encouraging densities along certain axes reaching out from the central city. It is worth pointing out that the construction of this triple roadway system avoided many of the headaches of major public works efforts, with all their intrusive interventions, by imposing it largely on existing streets and roads – with very little change to the pre-existing urban fabric. This also greatly reduced costs.

The Strategy of "Land Stock"

Before actually building this road system, the municipality of Curitiba adopted the strategy of building up "land stock" for the needy. In this approach, many plots of land were acquired before the actual transportation routes were laid out. This enabled the city to organize housing programmes which settled some 17,000 lower income families next to the proposed new transport facilities. The consequent increase in the price of their newly-acquired "land stock," with the introduction of modern urban transport, was therefore counted as an indirect subsidy to those who needed social integration.

Red, Green, Yellow, and Blue Buses

The integrated transport system was implemented gradually, initially with only two express routes. By the early 1980s, a decade after the project was started, the system had five express and three interdistrict routes. Presently, there are six interdistrict routes and the workers' route, five express lines and feeder lines connected to all 15 intermediate terminals and big metropolitan terminals.

The integrated transport system is composed of: express buses (red); interdistrict buses (green); conventional, or feeder, lines (yellow); and student lines from the centre to main universities (blue). The interchange of passengers at the end of the express routes occurs at a big terminal which is large enough to cope with integration with neighbouring municipalities within the Curitiba metropolitan area. Passenger interchange within the city confines is accommodated in smaller terminals built in the scale of the existing environment.

Shorter Routes Subsidize Longer

There is both physical and fare integration. The passenger pays the ticket when he enters his terminal and is allowed to cross the whole city at the price of a single fare. The "social fare" means that the shorter routes subsidize the longer routes because, in Brazil, lower-income people live further away from the town centre.

All fare collected by the bus companies are deposited in a transportation fund which is managed by the municipality. The bus companies receive their revenue according to the number of kilometres they operate. Efficient managerial control on the part of the city makes sure that the performance of the system corresponds to existing demand.

The buses have been designed both with a view to giving comfort and being able to take on more passengers at peak hours. The terminals were

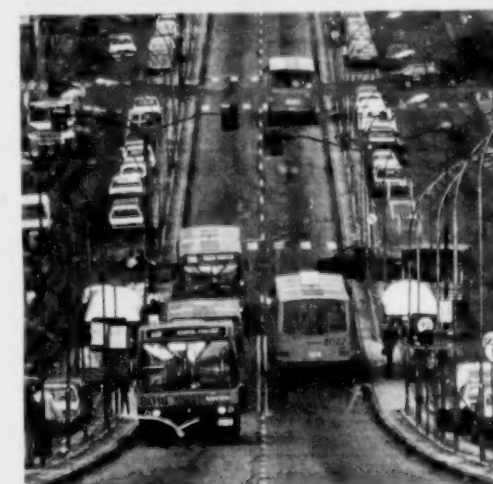
conceived as public meeting points, city squares lively with commerce and other attractions. In addition to the bus services mentioned above, there are also "Selective Buses" (from the centre to higher income districts as an alternative for those who have cars, "Neighbourhood Buses," and the "Shuttle Service" from the south terminal to the Zoo.

Knowing How It Works

The visual communication which we emphasize (with different colour buses for example) is important: the population will be able to use the system effectively to the extent they understand how it works. Simultaneous traffic control in the central areas of the city helps improve the system performance; traffic light timing is changed according to circumstances by a computerized system. Another device, imbedded in the bus lane and triggered by the vehicle's wheels, keeps the green light on when an express bus is about to pass.

The Bicycle Network

In another attempt to improve traffic circulation, we have already built 53 kilometres of cycleways; in all we plan some 174 kilometres of these paths for bicycles that will be built within



Integrated transport system in Curitiba

Curitiba's *Cidade Industrial* (Industrial City) in the south-western environs of the urban centre along with other bike paths in the city's leisure parks.

This programme also calls for the implementation of bicycle parking lots, repair shops, bars, news agents, meeting points and other attractions along the bicycle networks. Another idea involves the creation of a "bicycle boy" agency. Using their bicycles, office boys could move about quickly within pre-established areas, where they would pick up and deliver mail and small packages for a modest fee. This type of service would aid in introducing into the work force poor and homeless children aged 14 and older.

A Planning Instrument Not a Problem

We know that the planning of a city never stops – as these areas, particularly in the third world, are constantly growing. We believe that the unfolding of Curitiba's integrated transport network offers a good example of this philosophy.

As the network was put into place, the ratio of green areas per inhabitant increased – from about one-half a square metre in 1970 to the present 51 square metres per inhabitant. An old gunpowder magazine was turned into an arena theatre. An abandoned glue factory became the Creativity Centre. An old army headquarters was transformed into the headquarters of the Cultural Foundation. All of this reinforces my belief that public transport should be regarded not only as a problem, but as a planning instrument for better urban life. ■

The Hub of Japan

By Masahiko Honjo

Since the 19th century Meiji revolution, the development of Japan has been, in many ways, the story of the growth of Tokyo. Masahiko Honjo discusses some of the reasons behind the city's dense population concentration – including the formative role of Japanese railways. He focuses particularly on post-World War II Japan. Dr. Honjo is the Director of the International Development Center of Japan. – Editor

Since the end of World War II, Tokyo has become the seat of almost all central managerial functions in Japan – it controls top decision-making in a number of sectors, government as well as private. It is the centre of international business and finance.

- Ninety per cent of foreign companies in Japan are concentrated in the Tokyo area. From 70 to 80 per cent of financial transactions – from cheque exchanges to stock sales – take place there. More than half of bank loans in Japan are provided in Tokyo; about half of all the nation's bank deposits are accumulated there.

- It is the centre of information. Nearly 60 per cent of workers in this field – television, newspapers, other media, computer specialists, big advertising agencies – all are concentrated in the Tokyo area.

- It is the centre of education. More than 40 per cent of Japanese university students are clustered in the capital city – although government policy since the 1960s has tried to discourage student concentrations in the inner city areas of Tokyo.

Spiralling Land Costs

The ongoing concentration of central managerial functions in Tokyo has accelerated a race to acquire office space – particularly in the central business district. To meet the demand, construction of new offices has intensified in Tokyo, particularly within the three wards of the central business district – Chiyoda, Chuo, and Minato – comprising an area of about 20 square kilometres. The rising prices within the centre of Tokyo has led prospective home buyers into an ever widening search in the suburbs of the city for available land.

The Railroad City

Tokyo's present urban structure is very much based on railway lines. Two-thirds of Tokyo's commuters are dependent on rail systems. The railroad forms the skeleton of Tokyo's present structure. It has so far proved the most effective means of coping with transportation needs which have a very high peak load at rush hours: an inevitable result of having so many passengers who must travel at fixed hours, like office and factory workers, students, etc. In answering such needs, railroads are capable of carrying mass passenger loads, and concentrating them in stations at key locations. This permits the provision of a very efficient and high level of commercial and social services at these points.

Origins of the Railway

Originally, Japan's national railway system was developed to service Tokyo as the capital. It consisted primarily of trunk lines going to: the south-west (the present Tokaido line); to the west (Chuo line); north (Tohoku line); north-east (Joban line); and, east (Boso line). A freight bypass loop was also established to connect these lines to those within the existing city boundaries.

As Tokyo expanded, the national railroad system promoted commuter service for suburban residents through the new rail network. Tokyo Central Station in the central business district was the hub; inside the loop – this was the Yamate (now "Yamanote") green line – transportation service was left to trolleys and buses.

As Tokyo grew further, private railroads also came into being, servicing new commuters. The railroads were requested to start from terminals along the Yamate loop in order that commuters could be linked to trolleys and buses at that point. Sub-centres like Shinjuku, Ikebukuro and Shibuya grew as masses of transferring passengers had to go through these points.

In post-war days, many subway lines were constructed to replace the trolleys within the inner

city loop. They were organized in such a manner as to service the central business district by linking opposite ends of the suburban railroads at the loop, to aid suburban commuters in their daily travels into the central business district.

This proved beneficial both to the commuters – by cutting down their travel time – as well as to the subways: it meant that many passengers could be funnelled directly from the existing private railroads into the subway system. The subways thus generated the income needed to pay for the very expensive costs of subway construction.

Generating New Focal Points

The combination of public and private interests enabled the Tokyo urban rail system to grow very rapidly – and it now handles 2 million passengers a day. At the same time, the sub-centres established –

communities seems to be developing.

The shinkan-sen – the "bullet train" – can be seen in a similar context. It runs through the so-called "Pacific corridor" of the Japanese archipelago. This is no longer the fastest train in the world, but it is still the one with the highest frequency – running a train every five minutes at peak hours, just like a commuter line. The shinkan-sen can carry 1,000 passengers per train.

Such passenger volume can have a very large impact on the "super-express" stations along the line, and thus also help determine the key locations in the urban hierarchy along this important central corridor.

In the present stage – as evidence at least in the Tokyo mega-city – there is a change in the notion of the traditional hierarchical system of cities. Remote areas quickly lose populations, while cities, as

TOKYO: ROLE MODEL FOR THE MEGA-CITY OF THE FUTURE?

Tokyo, which may be the largest urban clustering on the face of the earth (depending on how you count) has often been singled out as the mega-city that works. It is virtually free of the street crime which has paralyzed so many other of the world's big cities – in rich or poor countries. It has an efficient, far-flung and rapid public transport system which efficiently funnels millions in and out of the city daily.

But is Tokyo all that much free of problems? Within the slim horseshoe-shaped belt of land around Tokyo Bay are some of the densest, most over-populated urban concentrations on this planet. One out of every four Japanese lives in this narrow strip of land, only 3.6 per cent of the country's total land area. At the UNU Mega-City conference, three Japanese scholars gave their own perspective on some of Tokyo's issues as a mega-city: the unbelievably high real estate prices, which shut off the home-owning dreams of most Tokyo families; the heavy concentration of so much of the nation's financial, educational and information resources in the capital city, and the desirability of developing Tokyo as a multi-centred urban structure. (A third of Japan's college students, a similar proportion of the country's newspapers, nearly a fifth of all its radio and TV stations are in Tokyo.)

The presentations on these two pages are taken from a paper presented at the Mega-City Conference by scholars from the Tokyo Institute for Municipal Research, the University of Tokyo, and the International Development Center of Japan. – Editor



One of Tokyo's many train lines

at Shibuya, at Shinjuku, at Ikebukuro – have reached their own generating potential for further growth. They have become stronger focal points for commuters, as well as for their surrounding neighbourhoods. These centres have become important shopping areas of Tokyo, replete with the latest merchandise from Tokyu, Seibu, Isetan and other retail giants.

As suburban development proceeded around Tokyo, the position of the railroad companies became even stronger. They came into the field of urban development in a regional context. The railroad companies were in a position where they could not only plan ahead for the location of new large-scale housing developments; they could also extend services for the daily needs of the residents, through a combined system of large department stores at the terminals, and a chain of shopping centres and supermarkets within their "territories" in specific directions.

Railroad Station "Hierarchy"

In the interests of speeding up operations, railroads have begun promoting express service by selecting particular stations for their express stops. This is inducing a new urban hierarchy along their lines, and a workable network among the local

subregional and regional centres, gain more population. In the metropolitan regions, the inner city loses populations while the outer suburbs grow. In the case of Tokyo, for example, the population of the inner city has remained at about 8 million, while surrounding cities like Yokohama grew from 2 to 3 million in a matter of 15 years.

At each point of growth, when the human agglomeration crosses a certain threshold, new possibilities for further development become open. What Yokohama can do at the stage of 3 million people is quite different from what it might have done with 1.5 million. What is important at present, I believe, is to develop a networking of urban functions among the cities, so that a proper division of labour can be promoted within a given region.

Equally important, however, is the creation of a decent living and working environment that meets the needs of those who live within the region. Consideration of the human aspects is the most crucial issue for the future development of the mega-city.

"Newest of the Great Cities"

"As a city, Tokyo is not very old. There were settlements in the region from prehistoric times ... but the history of Edo, predecessor of Tokyo, really begins at about the same time as that of Boston (in 17th century colonial America). Edo was much quicker than Boston to become a great city. (But) Boston contains more physical remains of its very early past than Tokyo does.... Tokyo is a new city, perhaps the newest among the great cities of the world. It contains scarcely any buildings from the first two centuries of its metropolitan existence." Edward Seidensticker, *Forward to Tokyo Now and Then* by Paul Waley (Weatherhill, New York & Tokyo, 1984)

The Land Game

By Shigeru Itoh

The great demand for office space in central Tokyo has led to a voracious rush by real estate developers for tiny pieces of the city's land still owned by individuals. This has been fed by the extremely low interest rates of Japan's bankers. Developers have borrowed money at low interest rates in order to buy small land parcels at high prices. This ratcheting up of prices is discussed by Professor Shigeru Itoh of the University of Tokyo. — Editor

Tokyo is the centre of the Japanese economy — where most of the nation's final business decisions, domestic and international, are conducted and concluded. That this is so might be taken, on the one hand, as an argument to support and strengthen the Japanese economy. On the other hand, it might be argued that such a monopolar concentration of business functions is stimulating an exaggerated level of office demand within the central business district. According to recent reports, the office floor area of four wards in Tokyo's central business district have greater value than the whole of the office floor area available in all of Manhattan in New York City.

Land Price "Wars"

The high demand for large office building has inevitably led to the acquisition of land that had previously been extremely fragmented and privately owned. All this has stimulated a shift from private to corporate ownership. But in this process of collecting small and fragmented land parcels, some extremely fierce land investment activities have resulted.

The interest rates offered by Japanese banks have been extremely low by international standards. Taking advantage of this, some developers have engaged in an activity known as "land-price hiking." Such developers have borrowed money at low interest rates to buy small land parcels at high prices. These parcels are then pieced together and sold off to larger real estate agents at much higher prices. Office buildings constructed on such land naturally must charge very high rents.

Government Countermeasures

Various urban planning countermeasures have been enforced to halt the skyrocketing office rents and abnormal land prices resulting from the concentration of business in downtown Tokyo.

One approach has been to construct high quality office buildings throughout the 23 wards of Tokyo, instead of concentrating such buildings in the central business district. An example of this is the move of the Tokyo Metropolitan Government offices into a newly-built complex in Shinjuku. It is also supporting the creation of several other subcentres for office allocations.

Further Decentralization Needed

The Ministry of Construction now provides "urban planning" guidance for office and commercial facilities constructed within the 23 wards of Tokyo. Under their regulations, an increase in office capacity is granted those who construct free and open spaces for public use, or who specifically create a traffic route within the building site that is designed to link in with existing public transportation facilities. But even these efforts to decentralize

within the 23 wards must recognize that any attempt to satisfy real estate demands in the greater Tokyo area will ultimately lead to increased public transportation and energy demand, as well as heavier automobile traffic. What is necessary is an even broader dispersion of business functions to all of the 23 ward areas, including the waterfront. Unfortunately, in my view, this approach is strongly opposed by the national government.

The Tokyo Commuter

The extremely long commuting time of office workers in Tokyo has forced them to accept physical and mental hardships in their daily lives. As the housing area for Tokyo has expanded to an extremely wide region, the central government itself has come to acknowledge the deadlock in overcoming the critical problems of modern urban Tokyo: traffic congestion, urban pollution, skyrocketing land prices, the panic that might result if a large earthquake struck.

Such realities and possibilities have led the government to accept a new viewpoint on Tokyo's vastly spread disorder of residential areas — and to put a new focus on "living." The National Land Agency, for example, has designated certain large cities within 30 to 50 kilometres of Tokyo as so-called "business core cities." The long-term aim is to reform them into relatively independent cities with their own economic functions, without total reliance on Tokyo. Such moves should promote the national policy of nurturing satellite cities and contribute to the dispersion of activities and the creation of new housing.

Shaping Tokyo for the Future

By Hisatake Togo

The three wards of Tokyo's central business district have a daytime population of some 2.5 million. As night falls, nearly nine out of ten people leave for their homes elsewhere, on packed commuter trains which, every year, deposit them farther away from their downtown place of work. The need to decentralize the business community now so tightly and expensively packed into downtown Tokyo, argues Hisatake Togo, is an urgent priority for Japan. Dr. Togo is Managing Director of the Tokyo Institute for Municipal Research. — Editor

The major administrative task for Tokyo, as far as its urban structure is concerned, can be simply put: to transform the present centralized structure into a multi-centred one that balances both work and home — and to look forward to a 21st century Tokyo that is a pleasant city in which to live. Such a multi-centred structure would check the further concentration of business functions in the inner city, disperse these functions to sub-centres, and produce a city in which the relationship between workplace and home are more rationally balanced.

This concept has been made clear in several long-term plans advanced over the last decade by the Tokyo metropolitan government. But in implementing such plans, a number of policy considerations arise — that involve, for example, the promotion of desirable land uses and the development of a transportation network to support urban activities. Would it make more sense to give priority to the restriction of business functions in the central area, or to the development of new areas, away from the inner city, to accommodate such functions? Both might be desirable goals — but realistically impossible to implement at the same time.

Two Pressing Issues: Government Offices, the Bay Area

Two of the most pressing issues facing Tokyo at the moment are the relocation of the metropolitan government offices and the development of a waterfront sub-centre along Tokyo Bay.

In September 1985, Tokyo Governor Shunichi Suzuki presented a proposal to the Metropolitan Assembly for the relocation of the metropolitan

government office (which will be known as City Hall) to Shinjuku, one of the city's major sub-centres. The new government office was opened in April of this year.

This relocation is in accordance with the Tokyo Metropolitan Government's idea of diverting business functions from the central area, first outlined in the national Capital Region Development Plan over three decades ago in 1958. It is hoped that such a move will serve as a pilot project in the conversion of Tokyo's urban structure into a more multi-centred one.

The Waterfront: Reclaiming Tokyo Bay

The past decade has seen a rapidly increasing conversion of previously residential sites in the downtown areas to office space. The process has been accelerated by the internationalization of Tokyo and its recognition as a key nodal point in global communications, financial and otherwise. With this change, however, has come a distortion of the city's traditional role as a place to live, work and relax.

To help counter this, the metropolitan government has been encouraging businesses to relocate in the waterfront area along Tokyo Bay, with the anticipation that it will also supply housing. The basic plan for the development of the waterfront sub-centre was announced in March 1988. It is hoped that this will lead to the establishment of a totally new Tokyo sub-centre — often referred to as a "city of the future."

The waterfront plan calls for the creation of a sub-centre with a proper balance of employment, residential and leisure facilities on 448 hectares of reclaimed land. Eventually, it is anticipated that the waterfront project will house 60,000 people and provide employment for some 110,000 workers. A key concept is that of creating a comfortable space, where diverse urban functions are effectively and systematically anticipated. There will be facilities for business activities, such as the Tokyo Teleport and an international exhibition site, along with urban housing and cultural and recreational facilities.



A view of Tokyo's Shinjuku district

Undoing the Centralized Society

Over the last 100 years, Japan has permitted Tokyo to expand into a huge metropolis, out of a desire to create a centralized society. Today, however, as the harmful effects of excessive centralization become more and more apparent, the notion that society needs to decentralize is gaining acceptance. Changing the structure of the Tokyo Metropolitan Region into a multi-centred one is a difficult task — but we have made a start. The wisdom which we will draw upon from the participants in this conference — representing large cities around the world — will help us shape our future.

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Seoul: Still a Metropolis in the Making

By Sang-Chuel Choe

The capital of the Republic of Korea, Seoul, has grown over the last 40 years – when it first flashed on world consciousness with the outbreak of the Korean War – from an rather obscure national capital to one of the world's major urban centres, which, in 1988, hosted the Olympic Games. By the year 2000, it is projected to be the seventh largest city on the globe; its population now is increasing by about 500 persons a day.

How to manage such a vast urban conglomeration? The problems of coping with such growth are discussed in the following article by Dr. Sang-Chuel Choe of Seoul National University, which is excerpted from his paper presented to the symposium on the mega-cities and population growth. Dr. Choe is on the faculty of the School of Environmental Studies at the National University. – Editor

The phenomenal growth of Seoul is both consequence of and impetus for the unprecedented change that has transformed the Republic of Korea from a pastoral, preindustrial society into one of the world's fastest growing economies. The transformation of the country has been abrupt and pervasive – and Seoul has had a pivotal role in this process.

In 1960, Seoul did not appear in the ranks of the world's 25 largest cities. By 1980, it has risen 15th. By the year 2000, it is projected to be the 7th largest city on the globe. As of 1989, the population of central Seoul was approaching 11 million people – and was estimated to be increasing by about 500 persons a day.

But another aspect of Seoul's urban growth is the swelling population in the city's total metropolitan area, including its contiguous municipalities. Until 1970, there were only three cities that fell within this area – Incheon, Suwon and Uijongbu. Over the last 20 years, a total of 12 cities have been incorporated in these areas surrounding Seoul.

Central City vs. Suburbs

Until 1980, the population growth in central Seoul outpaced that of its outlying metropolitan areas. The trend then reversed, and the satellite cities surrounding the capital began to grow faster than central Seoul itself. It is noteworthy, however, that the Seoul metropolitan area as a whole is still growing faster than the national average – both in terms of population and the number of manufacturing establishments.

What this means is that the interregional decentralization strategy, which the government has seriously pursued and implemented over the last three decades, has not worked very well. This is precisely what some of us were worried about, from the very beginning, in these particular decentralization policies.

There were two main dangers in the strategies:

(1) they promoted satellite cities too close to Seoul, with the risk that they would eventually become engulfed as the boundaries of the metropolis ballooned outward over time;

(2) these satellite cities might pull migrants and resources from other regions of the nation, rather than attracting firms and households from Seoul itself – the latter being a major aim of the satellite city strategy.

Plans Come Astray

As a consequence of these policies, more than 4 out of 10 residents of the Republic are now living in the Seoul Metropolitan Area – that is within a 40-kilometre radius of central Seoul. The population share of the Seoul Metropolitan Area has grown from 21 per cent of the South Korean population in 1960 to 41 per cent in 1988. There is no clear sign that this trend will fade out.

Given this rapid pace of urban growth, the question of land supply and the management of urban land has been a key issue. The gross density per hectare in Seoul today is 328 – one of the highest in the world and it seems bound to get worse. As the available built-up areas within the jurisdiction of Seoul dry up, and further sprawl beyond the city boundary is artificially constrained by the green belt introduced in 1971, it is projected that that average population density in Seoul will be up to about 380 per hectare by the year 2000. (By way of comparison, Tokyo's density is about 115.4 persons per hectare.)

Go Out or Go Up?

There are two basic ways to meet ever-increasing population pressure for land in an urban setting. One is to go out – building large-scale new settlements beyond the green belt. The central government complex has already been relocated to the new industrial cities of Ansan and Kwacheon to the south of inner Seoul. Two more ambitious new town developments are planned: in Pundang, south-east of the central, and Ilsan to the north-west. The two new towns, meant to accommodate 400,000 and 300,000 inhabitants respectively, are intended to relieve pressure for residential land in the central city.

But these two new towns lie just beyond the green belt – about 20 kilometres from downtown Seoul, and too close to it to be self-sustaining in terms of employment and urban services. They will be, I fear, de facto extensions of Seoul proper and contribution to the growth of the Seoul metropolitan area as a whole.

The effectiveness of the green belt as a means of controlling urban growth has been questioned. Originally it was envisioned that land in the central city, which was encircled by the green belt, would be protected by that policy. But it has now been learned that as population pressure increases, land development tends to go its own way beyond the green belt, where desired or not.

Another way to accommodate land demand is to, in effect, go up – heightening the overall density of the existing built-up area by the redevelopment of low-density residential areas, squatter settlements, and other unwanted encroachments on public open space. To this end, areas of single detached residences have been replaced by row houses and high-rise apartments. Squatter improvement programmes, usually combined with the clearing of squatter areas for high-rise apartment complexes, are taking place everywhere in Seoul.

The Squatters

But serious tensions have built up between the squatter settlements and the developers acting as surrogates of the middle-income class. Direct confrontations have commonly broken into tragic clashes; this is becoming a great social problem. Squatter settlements, which came to occupy many hill-side areas in the 1950s after the Korean War, have superior locations: close to the city centre with relatively cheap land prices due to complications in land ownership titles.

The squatters are easily exposed to the whims of the real estate developers – and the latter are implicitly endorsed by the city authorities who are also concerned with the improvement of Seoul's



Old Seoul © Yoshiaki Nagashima/PPS

physical appearance and skyline. The city government thus finds itself as an arbitrator, representing, on the one hand, the socio-economic well-being of the squatters, and on the other, the overcoming of housing land shortage. In many instances, the city has been the loser – and it is still trying to solve this stalemate.

The Korean Land Market

Korea is experiencing great distortions in its land markets, often expressed in unthinkable land prices – an escalation due largely to a range of economic and demographic growth along with a rapid increase in personal wealth. Land is considered one of the safest forms of investment, a hedge against actual and anticipated inflation, and it is acquired by the newly rich not so much with its physical use in mind but rather as a form of security against economic uncertainty.

Land ownership in Seoul is strongly skewed – to the extent that about 72 per cent of the households do not own a piece of land. The upper 5 per cent of the households own 57.7 per cent of the total land. And land prices in the urban areas have increased 8.4 times from 1975 to 1988.

Perhaps the single important determinant of increasing income inequalities in urban households is the unearned income segment resulting from land price escalation. Land speculation is widely practised. Housing affordability for Seoul's low and middle-income households has gradually worsened. For those at the lower end of the economic ladder, the land cost component, out of their total housing price, has increased faster than their income and savings. At the other end of the ladder, the urban rich own land that is accumulating in asset value, and enjoy windfall benefits from land price escalation.

Shredding the Social Fabric

As a consequence of these various forces, the socio-economic fabric sustaining the stability of Korean society – which has been characterized by a relatively egalitarian distribution since the land reforms of 1949 – has begun to tear apart and shred. This has led, in turn, to a degradation of the work ethic, the overburdening of land acquisition costs for urban public works, and a pervasive sense of deprivation among many Korean homeowners themselves.

The government has recently introduced various policy measures to curb land speculation. In particular, direct government intervention into land markets was introduced in 1990. This includes, among other measures, a maximum ceiling on residential land ownership in Seoul at 660 square metres, and a limit on real estate profits on specified projects (in simple terms, anything earned above the limit must be turned over to the government). It is too early to evaluate the effectiveness of these strident new measures and their impact on land markets in Seoul. What is clearly needed, however, is some sort of enabling mechanism that would help ensure a smooth supply of land at reasonable prices, while at the same time preventing unruly land speculation, improving urban services, and enhancing the social well-being of the underprivileged of this mega-city's people.



Modern Seoul © PPS

Asia's Growing Urban Rings

By T.G. McGee

The image of millions of rural peasant farmers and their families pouring from the hinterlands into the glitter of downtown Jakarta, Seoul or Manila, argues Terence McGee, is a very misleading one. More likely, the new arrivals have come from the part rural, part urban rings surrounding the central cities, where they were engaged in a mix of agricultural and industrial activity.

These regions – which he calls “desakotas” (or village-towns) – pose new analytical challenges for Asia’s urban planners, who have been ill-served, he says, by the “mental baggage of concepts and ideas” that have grown out of the Western urbanizing experience. Professor McGee is Director of the Institute of Asian Research, at the University of British Columbia, Vancouver, Canada. The following is taken from his presentation to the Tokyo mega-cities conference. – editor

I would throw out the challenge that the body of Western-derived urban theory should be evaluated carefully as it is applied to the experience of urbanization in Asia. Very different sets of conditions are operating in Asia today than those which occurred in the Western industrialized countries in the 19th and 20th centuries.

The conventional wisdom on the transition from rural to urban society seems to me to be inadequate in three respects. First, it is too narrow in its view that the widely-accepted spatial separation of rural and urban activities will persist. Second, it is off in its assumption that the rural to urban movement is an inevitable result of economic advantages resulting from urban population concentrations. (In many parts of Asia, the population densities in the countryside are similar to those of the urban areas which they surround.)

Third, the western paradigm of urban transition is based on the historical experience of that process as it occurred in Western Europe and North America in the 19th and 20th centuries. This is not necessarily transferable to Asia’s urbanization process. Among other historical factors, the uneven incorporation of the Asian countries into a world economic system – from the 15th century onwards – created divergent patterns of urbanization, reflecting different historical interactions between Asian countries and the world system.

Needs of the “Urban Revolution”

A major question must be whether Asian countries can experience a structural transformation in their economies which is associated with an “urban revolution,” and the successful absorption of the labour force into their urban economies during this transition.

Various projections make it clear that during the closing two decades of the 20th century, urban growth rates in Asia cannot accommodate the overall population increases or the shift of people from rural areas – suggesting that population growth will continue in rural areas.

There are, of course, major regional differences. In Asian countries like Japan or Taiwan, the urbanization process is largely completed. In others – for example, Thailand – the situation is changing so rapidly that it is hard to know where to place them. Still another category are those countries where the rates of population increase remain high, urbaniza-

Share of Off-Farm Income in East Asian Farm Families			
Countries	1965	1975	1980
Japan	54%	66%	79%
Taiwan	27% (1966)	48%	66%
Republic of Korea	16%	16%	20%

tion levels are changing little, and the proportion of the labour force in agriculture has remained fairly constant. Finally, there is China, whose patterns of economic development and urbanization are different from the rest of Asia – particularly in terms of the fluctuations in levels of urbanization.

Off-Farm Employment

In studying this “mix” of urban-rural interaction, several points should be underlined:

- There is little doubt that significant improvements in agricultural technology and production – together with the opening up of new land and the improvement of old land – have led to increased agricultural productivity in many Asian nations. But this has not been sufficient to prevent an increase in the absolute number of people in the poverty sector, even though the proportion may be falling.
- A shift often ignored in many analyses is the movement of labour from farm to non-farm sectors within rural areas. While there are serious statistical problems here, most data suggest that approximately 20 to 30 per cent of rural workers throughout Asia may be regarded as employed in non-agricultural activities as a major source of income – and that probably that proportion is increasing. The importance of off-farm employment is well-illustrated by the experience of Japan, Taiwan and the Republic of Korea; the growth of off-farm employment to some extent parallels overall economic development.

Nature of Rural Industries

The nature of the growth in opportunities for earning off-farm income is also illuminating. Structurally, rural non-farm activities are dominated by manufacturing. Within that sector, tobacco and beverage manufacturing appear to be the most important in the rural industries in Malaysia (61.7 per cent) and India (47.5 per cent). Textile and footwear manufacture is more dominant in Bangladesh (58.2 per cent), Pakistan (39.6 per cent) and the Philippines (46.4 per cent).

The service sector also appears to be of growing importance in the rural economies of South and South-East Asian countries. In some instances, this appears to be a “low productivity” type of service occupation. In the Philippines, for example, there are indications that the informal sector – such as small-scale trading and domestic and personnel services – form an important segment of the rural non-agricultural sector. In a country like Sri Lanka, where free education is available, educated rural poor seek government-related service employment.

While this growth of rural non-agricultural activities is not the only factor influencing the patterns of urbanization and labour force absorption, it is a very important factor in the Asian

context. It is important to emphasize that the proximity to urban centres is a major factor increasing non-agricultural incomes in rural households. It might even be argued that such forces are slowing the process of rural-urban transition – by “holding” populations in areas defined as “rural.” But in my view these holding areas are rapidly becoming giant urban regions.

In many ways, the traditional Western rural-urban paradigm – with its clearly demarked boundaries between “country” and “city” – confuses urbanization and labour force questions in Asia. Let me argue here for a new set of definitions of spatial configurations in and around major urban areas. In particular, I would like to focus on those lands stretching along the linear corridors between large city cores, in which there is an intense mixture of agricultural and non-agricultural activities – a region which I have labelled, “desakota.” (Desakota is a coined Indonesian term from the two words, kota (town) and desa (village), originally adopted after discussions with Indonesian social scientists. It reflects my belief that there is a need to look for terms and concepts in the languages of third world countries which reflect the empirical reality of their societies. – TGM)

The Desakotas

These regions – at one and the same time rural and urban areas – are characterized by large populations engaged in small-holder cultivations (mostly rice). Now engaged in many non-agricultural practices, they were previously largely agricultural. There is now a great mix of occupations – often in the same families. One person may commute to work as a clerk, another engages in farming, a third in industry, and a fourth in the retailing in the desakota zone.

These zones are generally characterized by an extreme fluidity and mobility of populations. The availability of cheap transport, such as two-stroke motorbikes, buses and trucks has facilitated relatively quick movement over longer distances. Thus these zones are characterized both by commuting to the larger urban centres as well as by intense movement of people and goods within the zone. They tend to have an intense mixture of land-use with agriculture, cottage-industry, industrial estates, suburban development and other uses existing side by side.

Negative and Positive Aspects

This intense land-use mix can have both negative and positive aspects. On the one hand, the waste of industrial activity can pollute and destroy agricultural land – these zones, on the whole, are much more intensively used than those of the central metropolitan area. On the other, the desakota zones have provided opportunities for increased participation by females in non-agricultural labour freeing them from their traditional field tasks.

I think the implications of the desakota zones are important for the future of Asian urbanization. Such zones undoubtedly are productive, catalytic regions for economic growth. At the same time, such regions can be extraordinarily difficult to handle. The mixture of activities often creates serious environmental, transportation and infrastructural problems – and particularly if such regions are as part of the “conventional” city planning mind-set. But their mixed, decentralized and small-scale economic organizations offer exciting prospects. The challenge to urban planners is how to take advantage of the positive aspects of these new sorts of urban rings, while controlling their negative ones.



Calcutta, India © Yoshiaki Nagashima/PPS



Jakarta, Indonesia © David M. Hayes/PPS

"A Giant Supermarket ..." Is There Anything Good about Mega-Cities?

By Andrew Marshall Hamer

The point was made over and over again at the Tokyo conference: huge urban conglomerations – anywhere in the world but particularly in the developing nations – tend to debase the human spirit, not lift it. But is there good news about the urban life? Might it be possible to create urban centres like those characterized by Ferdinand Braudel as "electric transformers" that "constantly recharge human life."

Today's urban planners, Andrew Marshall Hamer suggests, often overlook the positive economic aspects of urbanization. Immigrants from the countryside tend to be the best, the brightest and the youngest. Yet those who stay behind can also benefit, from tighter rural labour markets and remittances. The excerpt is taken from Dr. Hamer's paper delivered at the Tokyo mega-cities symposium. He is Principal Sector Economist at The World Bank in Washington, DC (USA). – Editor

If one were to differentiate the perspective of the urban economist from those often prevalent among other disciplines – urban planners, sociologist, geographers and demographers – it would be necessary to focus on two or three areas of disagreement, all linked by a common thread: whether or not third world mega-city development is doomed to systemic failure or not.

A major issue is the degree of rationality involved in individual, household and enterprise behaviour in the process of urbanization. Here the urban economist is more likely to conclude that the evidence suggests an absence of pathological behaviour and the essential soundness of many individual rural responses to the obvious economic incentives offered in the urban areas. One might contrast this with the social engineering approaches that seek to impose "order" on an "unruly" urban world.



Rio de Janeiro, Brazil © PPS

Size: In the Eye of the Beholder

If one looks at the top ten mega-cities of the developing world, it could be argued that size, and its implications, are largely in the eyes of the beholder. One has to ask if, in the abstract, the sheer numbers contribute very much to our understanding of issues and options. Do these numbers, in fact, serve little more than to alarm the uninitiated and create an assumption of unmanageability? The growth rates of the constituent parts of these mega-cities differ widely from one another, with low or even negative growth rates in the densest core and higher growth rates at the low density periphery.

What we have, really, are polycentric clusters of identifiable and separate cities and towns that require both regional trunk infrastructures and local urban management – or much the same thing that a province or a small country might need. And would anyone be alarmed to hear that there are small countries and provinces with an urban population of 10-20 million? In short, to treat the totality of these residents of one city, even if we use the prefix "mega," is to pervert the common sense definition of what a "city" is. Size per se is not the issue. Instead it is mismanagement at both the regional and local level, and wrong-headed urbanization policies, promoted by physical planners with their eyes on geography and very little sense of economics.

Why Do Mega-Cities Exist?

Economic development and urbanization are joint products of a wealth-creating process that generates large urban regions where per capital output exceeds the national average by a factor of 2-5 times. It seems clear that maximizing economic growth, a key objective for most countries that are poor, is facilitated by a concentrated "city-states" model of urbanization – at least until these countries reach middle income status.

By focusing activity in a relatively small portion of the nation's landscape when national income is low, governments reap the so-called "urbanization" economies of agglomeration – that is, for many economic activities, the production cost per unit goes down as the population size goes up.

Simultaneously, these "city-states" conserve investments in regional infrastructures for transport, communications, power and water supply. In such agglomerations, one can gather, on a cost-effective basis: a labour force with a wide array of skills; a large number of suppliers; diversified financial and commercial services; venture capital; access to information on foreign markets and technologies; as well as the social amenities (in for example, health and education) needed to attract managerial talent.

It is in such places that a low-income economy can reap the benefits of a rapid diffusion of new skills and technologies. At the same time, the local market will place concentrated purchasing power at the doorstep of the business community. In effect, the mega-city becomes a giant supermarket with the greatest array of choices in the country.

Variety: Spice of Urban Life

What proves most interesting when examining case studies across mega-cities – with regard to income distribution, poverty, access to services, and housing – is the great variety of outcomes. This immediately suggests that country-specific factors and governance issues are more important than size in almost all cases. (The exception would appear to be where environmental issues are involved. That is to say, the river basin or air shed capacity of a given land area on which a mega-city is built

may be limited enough so that the mere concentration of people raises negative externality issues that require pricing or regulation action.)

Looking at these case studies, there are examples of:

- Rapid growth in average per capita incomes – in Bangkok, Beijing, Shanghai, Tianjin and Seoul – and virtual stagnation on the same indicator, in Calcutta.
- From narrow to wide disparities in household income. In Chinese mega-cities, it is about 3:1. Elsewhere, in São Paulo, Mexico City and Metro Manila, for example, ratios of 20:1 or more are common. (The ratio refers to the top decile's average household income compound to the bottom deciles. – Editor)
- The percentage of the urban population which is poor is lower than in rural areas. Because the wealthy are more concentrated in mega-cities than elsewhere, rural income distributions tend to be more equal than urban ones.
- Cases with widespread slums, and cases where these are no longer a significant problem. Among the latter are Seoul, Bangkok, Beijing and Tianjin, all in Asia.
- Public utilities that provide near universal access to public services like water or solid waste collection – as in Seoul, Beijing and Shanghai – and cities that do not.

Poverty Not a Migrant Problem

The poverty problem – even if one focuses on it after acknowledging that the poor are not representative of the mega-city population – can be viewed from a less pessimistic perspective than is currently fashionable. Much poverty is temporary and related to life-cycle factors – particularly when viewed from the perspective of individual households, be they migrants or natives. In general, the poverty problem in cities is not a migrant problem and it is not susceptible to city-size controls. When it occurs, migration is sensible; it is not an irrational form of behaviour that automatically produces poverty.

Thieves, Drunks and Prostitutes?

The revulsion caused by low-income households in mega-cities has fostered a "myth of marginality" – one in which these poor have been characterized as unemployed loafers, abandoned women



Shanghai, China © Paul Lau/PPS

and children, "thieves, drunks, and prostitutes."

This view has been buttressed by the hypothesis that urban labour markets function in a kind of perverse manner.

For example, some explanations of the rural to urban movement have focused on the appeal of a high-wage manufacturing sector. In such scenarios, migrants relocate in large numbers hoping to win an employment lottery that entitles them to a secure, high-paying urban job. While waiting for a winning "ticket," these migrants crowd into slums where they experience prolonged, if indeed not permanent, periods of underemployment. This is the basis for the so-called "Harris-Todaro" hypothesis.*

Moving to the City: An Intelligent Choice

In fact, the evidence available on urban labour markets in developing countries suggests that this hypothesis is derived from poor or incomplete data. The immigrants from the countryside are, on average, rapidly assimilated into urban labour markets. Their earnings are linked not to their migrant status but their human capital endowment. The earnings of the migrant labour force are high enough, on average, to justify the decision to migrate – given the level of income they could be expected had they remained in the rural sector.

In fact, the so-called "informal" labour market, viewed as a dumping ground in the Harris-Todaro scheme, yields a distribution of income rewards that overlap to a significant extent with that of the so-called "formal" sector. They come because, on average, their youth and their above average education are best utilized in an urban environment.

The very poorest and the least educated rural workers, of course, remain largely immobilized in the countryside. But these poor who stay behind, many studies show, benefit from tighter rural labour markets and remittances. In sum, there is little evidence that poverty in the sending rural areas is worsened by migration. In addition, there is no evidence that migration causes the incomes of city natives to fall.

* J. Harris and M. Todaro, "Migration, Unemployment, and Development: A Two-Sector Analysis," *American Economic Review* (1979).

The Emerging World City System

By Fu-chen Lo

Powerful economic and technological forces, argues Fu-chen Lo, are bringing about sharply changed configurations in the world city system. Most notable is the emergence of cities in East and South-East Asia as world finance and trade centres – forming a new urban “growth corridor” on the world scene. Meanwhile, the great urban centres of Europe and North America that have dictated economic trends for several centuries are experiencing medium growth rates as they deindustrialize and change over from blue-collar to service economies. At the bottom of the heap – and, tragically, probably for some time to come – are the cities of Africa and Latin America, driven by debt, inflation, and massive inflows of rural migrants into a spiralling stagnation.

The many factors at play in this vast reshaping of urban patterns were discussed by Dr. Lo in a paper he presented to the Tokyo conference, and from which the following article is excerpted. A specialist in development economics, he is a Senior Academic Officer at the UNU. – Editor

The rise and stagnation of the OPEC cities; the debt burden of Latin American metropolises; the collapse of commodity prices and stagnation of import-substitution industries in African urban centres – along with the rising role of Tokyo and other Asian cities as new dominant trade and financial centres – clearly demonstrate how the major metropolitan centres of the world have been affected by the global economic adjustments that have been occurring in recent years. A new wave of techno-economic patterns is in the process of replacing the old production paradigm and reshaping, in the decades to come, the major metropolitan centres both in developed and developing countries.

Lewis Mumford wrote in 1961 that “megapolis is fast becoming a universal form, and the dominant economy is a metropolitan economy, in which no effective enterprise is possible without a close tie to a big city.” Whether they should be called megapolis, mega-city or world city, the role of the dominant cities is increasing associated with a nation's economic capacity and its external linkages as global economic interdependence has become more and more a reality in the post-World War II world. But particularly during the last decade, the world economy has undergone a series of upheavals which are changing the configurations of the mega-cities.

Uneven Economic Growth

Global adjustments which took place in the early 1980s continue to transform the world economy into a pattern of uneven growth among the major economic blocs. East and South-East Asia are leading with the highest growth rates, while the United States, the EC, and the rest of the world remain at a much lower level. The process of uneven growth and regionalization of world economic development is not a short-term phenomenon. It is mid-term to long-term in scale and structural in nature.

One of the key issues in the world economy today is the unresolved third world debt problem – estimated currently at US\$1.2 trillion. Since 1984, there has been a net capital outflow from the third world to the industrialized countries. Despite numerous efforts in debt rescheduling and negotiations, this outflow had reached US\$50 billion a year by 1990, and it is likely to continue for sometime.

The current third world debts and economic stagnation are largely attributed to the collapse of the prices of oil and other primary commodities in the early 1980s. As most of the developing countries are heavily dependent on commodity exports for their foreign exchange earnings (which, in turn, underwrite their industrialization), the collapse of commodity prices has led to serious and widespread economic crises in the third world – in Africa, Latin America, the OPEC bloc, and other commodity-exporting developing nations.

Copper vs. Optical Fibres

A structural problem that comes into play here

is the long-term decline of material inputs needed by the industrialized economies – that is, to a large extent, the raw materials and other inputs provided by imports from the third world. In Japan, for example, it is estimated that it now only requires 50 to 60 per cent of resource inputs to produce the same level of GNP as a decade ago. A declining share of material inputs in a given product has been spreading across most of the high valued trade manufacturing products, including automobiles, machinery and electronic related goods. New innovations in micro-electronics and communications, robotics technology, biotechnology and new materials have gradually become the fast growth and dominating sectors in the developed countries and some of the newly industrialized economies. The copper of Chile and Zambia, to cite just one example, is needed less and less; it is being replaced by more efficient optical fibres produced by high-tech northern industries.

The changing trade patterns that have emerged among the countries of East Asia, and between them and the United States and the European Economic Community, are the result of the rapid industrialization that took place in the 70s and early 80s among the Asian countries. Part of this is explained by the shift in the newly industrialized economies (NIEs) away from light manufacturing to durable consumer goods and machinery products, and the shift in the ASEAN countries* from raw material export to manufacturing exports. From these shifting patterns a new industrial belt has emerged within the global economy and within the world city system. Three groupings can be discerned:

• Group One – Debt and Dependency

The Latin American and African cities are plagued by high debt, high inflation and high dependency on primary commodities. These cities face immense difficulty in financing structural adjustment and urban infrastructural expenditures. Stagnation of commodity prices has also led to massive rural to urban migration – which escalates the pressure to expand the stock of urban infrastructure. Heavy external lending and sluggishness in commodity export earnings is further retarding urban development. This spiral of stagnation casts a dark shadow in immediate recovery of cities in these countries.

• Group Two – Blue-Collar vs. Service

In the medium growth group lies a whole range of cities from both developed and developing countries. The cities in the United States and Western Europe – New York, Chicago, London, Paris, Milan, etc. – have been suffering from the trend of deindustrialization in the 1970s accompanied by a continuous decline of blue-collar jobs in the traditional industrial centres. It is also evident that the structural change of these metropolitan areas corresponds with the increasing role of the service sector.

Lately a new trend of information processing and high-technology industries has begun to serve as the impulse for future growth. But this does not necessarily coincide with some of the old metropolises. In Europe, the opening of East European cities and the impending integrated EC market is expected to stimulate industrial revitalization with an increasing role for high technology.

• Group Three – World's New Growth Corridor

The cities with high economic growth rates have been highly concentrated in East and South-East Asia. These cities have witnessed a phenomenal expansion in their share in world trade and production. Tokyo has emerged as a world financial centre as Japan has assumed the role of the largest creditor in the world. Many Asian economies have also experienced a two-digit growth rate in the recent past. Trade and inter-industrial linkages, together with a massive flow of capital, the Asian NIEs, the ASEAN countries and Japan have led to rapid growth and structural transformation. A network of Asian cities is expected to form a new growth corridor in the world city system.

* Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand.

Long Waves and World Cities

In recent years, there has been a revival of interest in the notion of long waves of economic structural changes – 50-to-60-year-cycles of economic fluctuation, often known as “Kondratieff cycles” (after the Russian economist Nikolai Kondratieff who developed the theory in the 1920s.) Innovation is seen as the fundamental impulse which sets and keeps the economic engine in motion.

Briefly, it is proposed that the world economy has undergone four Kondratieff cycles since the beginnings of the Industrial Revolution in 18th-century Europe. In the first long wave (1770s–1830s), clusters of innovation in steam engines, iron casting, textiles and mechanization brought with it the factory organization and the emergence of British supremacy in trade and international finance. There was rapid expansion of retail and wholesale trade in new urban centres.

In the second Kondratieff wave (1830s–1890s), railway and steam power were the dominant technologies and overcame the limitations of water power. Britain continued to lead during this wave and was joined by France, Germany and the United States. Modern urban centres in the major industrial countries emerged, interconnected by railways and seaports – including colonial control of the third world resources and seaports.

In the third wave (1880s–1930s), Germany and the United States took over the lead from Britain in applying electrical and heavy engineering and steel technology in overcoming the limitations of iron as an engineering material. An important phenomenon was the rise of mega-cities such as London and New York as major commodity markets as well as banking and finance centres.

By the fourth wave (1930s–1980s), Britain had lost its preeminence to the United States and Germany, with Japan emerging as a latecomer. Fordist mass production was the dominant technological paradigm, based on full standardization of components. The United States had the advantage in cheap energy resources with the requisite technology to tap mass markets.

The fourth wave coincided with the post-world war industrial development of most of the third world countries. The availability of relatively cheap and abundant resources witnessed a massive build up in production capacity. The economies of both the North and South were becoming increasingly interdependent, with cross border flows of raw materials, goods, capital and technology. The major cities began to assist in the process of globalization and integration of the economies of nations.

Now – The Fifth Wave

It has been argued that a fifth Kondratieff cycle has emerged in the late 1980s, with clusters of new innovations in computers, electronics and telecommunications, new materials, biotechnology and robotics becoming the leading growth sector in the world economy.

The mega-cities have shown great potential to tap these new rapidly-growing knowledge-intensive industries. In particular, Japan and its mega-cities have demonstrated that they have the social and institutional ability to exploit this new paradigm, and have assumed a new leadership role in this area. The Japanese approach to mega-city management has also supported regional policies which lay great stress on the development of “technopolis,” providing science, education, communications and transport infrastructures. Tokyo, Osaka, Nagoya, North Kyushu, etc. have consistently sought to strengthen technological and managerial capabilities to service its new knowledge-intensive industries, both domestically and globally. They have demonstrated clearly that the power of a mega-city of the future lies in its capacity to identify and formulate policies on the basis of those new technologies which are most likely to transform existing urban patterns. ■

UNU UPDATE

The following is from an information circular prepared for use within the immediate UNU system. We think such reports may be of interest to the worldwide readership of WORK IN PROGRESS. — Editor

- Agreements on the establishment of the UNU International Institute for Software Technology (UNUIST) were signed in Macau in March between the University, the Governments of Portugal and China and the Governor of Macau. UNUIST is the first international institute devoted to helping build modern software technology capability in developing countries. It is envisaged that US\$30 million will be contributed to the UNU Endowment Fund in respect of UNUIST. The Institute is expected to start operations shortly in Macau with a core staff of professional and supporting personnel on the income derived from an initial fund of \$20 million contributed to the Endowment Fund (\$5 million each from the Governments of Portugal and China, and \$10 million from the Governor of Macau), and an additional \$10 million which will be obtained from other sources through the Governor of Macau by the end of 1995. UNUIST is the latest addition to the global network of UNU research and training centres and programmes. It is the third programme of this type to be based in a developing country.

- During the first quarter of 1991, the UNU received the following contributions from member states of the United Nations and private foundations:

Austria — AS100,000 (US\$9,470), endowment contribution

Brazil — US\$54,256, operating contribution

Egypt — US\$50,000, operating contribution

Finland — FM2,782,800 (US\$766,612), UNU/WIDER (UNU World Institute for Development Economics Research) research project on Transformation of Centrally Planned Economies: the Lesson for Developing Countries

France — US\$80,000, operating contribution

Philippines — US\$3,584, operating contribution

Switzerland — US\$67,000, UNU Journal, "Mountain Research and Development," and related network activities

Toshiba Foundation — ¥5,000,000 (\$36,232), UNU Fellowships, National Food Research Institute (NFRI), Japan

Nissho-Iwai Foundation — ¥2,000,000 (\$14,493), NFRI, Japan

- The Government of Italy has made the first payment of 30 million Lire (US\$30,000) on an earlier pledge of 300 million Lire to initiate planning for an international consultative meeting at the University of Sassari which will explore the feasibility of a UNU programme on marine science and ocean affairs.

- An international conference on Climatic Impacts on the Environment and Society was held in Ibaraki Prefecture, Japan, (27 January — 1 February), under the auspices of the University of Tsukuba. Some 150 scientific papers were presented and discussed. The conference, which provided a valuable opportunity for further UNU-Tsukuba collaboration, was an important step in promoting the international network on climate-related impact assessment. The conference was jointly organized with the Second World Climate Conference (held last year in Geneva) and the Japan Study Group for the World Climate Impact Programme.

- Twenty-three participants from Ghana, Nigeria, Senegal and Cameroon took part in a seminar on Development of High Protein Energy Foods in Accra, Ghana, in February. The seminar reviewed the research and training activities in the area of high protein energy foods under the joint AAU/UNU Regional Food and Nutrition project in Africa.

- A high-level UNU-UNESCO meeting was held in Paris in February to identify possible areas of cooperation for the 1992-93 biennium and the medium-term programmes of both organizations, and to review follow-up activities on current joint projects. The discussions included, among others: (a) future science and technology policies workshops; (b) BIOLAC (UNU Programme for Biotechnology in Latin America and the Caribbean) cooperation with UNESCO/UNIDO/UNDP programmes; and (c) environmental programmes, such as the UNESCO-MAB continued cooperation and support for the UNU's Mountain Ecology and Development project, the planned assistance to UNU/INRA (UNU Institute for Natural Resources in Africa), and possible joint sponsorship of some of the conferences in the Frontiers of Science series. Also reviewed were possible joint activities with the University's research and training centres, UNU/WIDER, UNU/INTECH (UNU Institute for New Technologies) and, in the future, UNUIST.

- A feasibility study meeting to consider the proposed establishment in the Thai capital of an International Programme for Veterinary Diagnostic Technology was held in Bangkok in February. The international team at the meeting held consultations with senior officials from Chulalongkorn University, the Department of Livestock Development of the Ministry of Agriculture and Cooperatives, and representatives of other government departments, and of UNDP, FAO and

ESCAP. The findings of the feasibility study were presented to the UNU Council at its June meeting in Macau for its preliminary consideration.

- Two meetings on the decision of the Government of Ghana to host the UNU's Institute for Natural Resources in Africa were held in Accra in February and April with the Office of the Provisional National Defence Council Secretary for Education. An interim office for the Programme on Natural Resources in Africa is at the UNESCO Regional Office in Nairobi, Kenya, and a mineral resources unit in Lusaka, Zambia.

- The first UNU/INRA consultative meeting for eastern and southern Africa was held in Lusaka, Zambia, in March. It reviewed the status of potentials and constraints of natural resources in different parts of Africa. Participants were brought up-to-date on the projected work of INRA and the need to cooperate with African universities and institutes in human resource development and capacity-building in the area of natural resources. Twenty-two status reports on various aspects of natural resources in Africa have been commissioned.

- Sir John Kendrew, former UNU Council chairman, and Dr. Bernard Goldstein, Director of the Environmental and Occupation Health Sciences Institute in the United States, are currently studying the possible work programme on the proposed UNU institute on global environment and human health as a joint effort of Ulm and Stuttgart Universities in Germany. A preliminary report on their activities was presented to the Council at their June session.

- A UNU/WIDER project studying the lessons for developing countries in the recent transformation of centrally planned economies held the first of several planned meetings at WIDER in Helsinki in March. At the meeting, a group of high-level policy-makers, academics and management consultants discussed issues of industrial and competition policies in Eastern and Central Europe and the Soviet Union.

- A training course on science and technology management, attended by 26 professionals from all over Latin America, was held in Havana, Cuba, in March. This was the first in a series of regional training courses in science and technology policies being undertaken by the UNU in close cooperation with UNESCO. The training courses draw largely upon the sourcebook, "Science, Technology and Development," which the UNU is now in the process of producing and will ultimately be published in English, French and possibly other languages. Several Latin American authors of the sourcebook were lecturers at the Havana course.

- The Korean Research Institute for Human Settlement in Seoul hosted a UNU workshop in March on urban systems in the Asia-Pacific region. The workshop was a follow-up activity to last year's mega-city symposium (adaptations of some reports from this meeting are presented in this issue of WORK IN PROGRESS), which had recommended a comparative study of Asian-Pacific cities. Twelve scholars from the region participated in the workshop. The project plans to publish two volumes on its research into future problems and policies of Asian-Pacific mega-cities and urban systems.

- A conference on decentralization and alternative rural-urban configurations was held in Sitges, Spain, in April. The meeting was attended by 27 scholars from 17 countries. Papers presented concentrated experiences and policy issues in the areas of political and administrative development, governance and services, and revenues for specific services. The conference was part of the process of determining the feasibility of the proposed UNU research and training centre in Barcelona on governance, the state and society.

- An interdisciplinary symposium concerned with the growing body of knowledge on chaos theory was held in Tokyo in April. The symposium, "The Impact of Chaos on Science and Society," brought together mathematicians, physicists, natural scientists, engineers, economists and social scientists for an exchange of experiences with chaotic behaviour and its implications for future scientific inquiry. Among the speakers and participants were some of the world leaders in the field of chaos research. The symposium was the first of a new UNU series on Frontiers of Science and Technology.

New United Nations University Press publications:

- *The Ethnic Question: Conflicts, Development and Human Rights*, Rodolfo Stavenhagen.

- *Human Rights and Scientific and Technological Development*, C.G. Weeramantry (ed.).

- *Tropical Home Gardens*, Kathleen Landauer and Mark Brazil (eds.).

- *Food and Energy: Strategies for Sustainable Development*, Ignacy Sachs and Dana Silk (eds.).

- *Global Challenge and Local Response: Initiatives for Economic Regeneration in Contemporary Europe*, Walter B. Stöhr (ed.).

A local Philippine edition of *Conflict Over Natural Resources in the South-East Asia and the Pacific*, edited by Lim Teck Ghee and Mark J. Valencia, originally published with Oxford University Press, Singapore, was brought out by Ateneo de Manila University Press. The UNU Press is discussing with prospective publishers a Japanese and an Italian edition of *Maldevelopment: Anatomy of a Global Failure* (by Samir Amin); an Italian edition of *Meiji Ishin* (by Nagai Michio and Miguel Urrutia); and a Japanese edition of *In Fairness to Future Generations: International Law, Common Patrimony and Intergenerational Equity* (by Edith Brown Weiss).

* Some reports from the chaos symposium will be the main focus of the next issue of WORK IN PROGRESS. — Editor

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WORK IN PROGRESS

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Administration, Production and Distribution: Sumiko Sudo

ISSN 0259-4285